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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/159,442	09/24/1998	ELWOOD G. NORRIS	T7029	5130

20444 7590 10/09/2007
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SANDY, UT 840911219

EXAMINER

LEE, PING

ART UNIT	PAPER NUMBER
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2615

MAIL DATE	DELIVERY MODE
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10/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/159,442

Applicant(s)

NORRIS ET AL.

Examiner

Ping Lee

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14-25, 27 and 29-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-25, 27 and 29-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-11, 14-16, 18-25 and 29-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tibbetts (US 4,056,742) in view Tanaka et al (hereafter Tanaka) (US4,823,908).

Regarding claims 1-3, 5-7, 20-32 and 35-59, Tibbetts discloses a general housing of a piezoelectric film (abstract; "polymer film") transducer structure without teaching electrician circuit on how to generate the driving signal. One skilled in the art would search the related art looking for teaching on how to drive the piezo transducer. Tanaka teaches (see Fig. 2) how to driver piezoelectric vibrator based on the parametric interaction (col. 2, lines 33-43) of the ultrasonic waves. The parametric speaker would have a super directivity. Thus, it would have been obvious to one of ordinary skill in the art to modify Tibbetts by utilizing the parametric interaction as taught in Tanaka in order to having a super directive speaker.

The claimed "film being continuous over a length of at least ten wavelengths of the electrical signal at its lowest frequency value" would be an obvious design choice to modify Tibbetts. Tibbetts teaches that the length of the film depending on the required speaker size and the pressure it must withstand (col. 4, lines 29-32). Applicant fails to define in the specification the significance of this feature. Thus, depending on the speaker size requirement, such as mid-size speaker, it would have been obvious to one

of ordinary skill in the art to modify Tibbetts to have the film being continuous over a length of at least ten wavelengths of the electrical signal at its lowest frequency value.

Regarding claims 4, 8-11 (Fig. 1), 14-16, 19, 24, 33 and 34, Tibbetts fails to disclose the film as a thermally formed film. However, it would have been obvious to one of ordinary skill in the art to use any well-known made film, included thermally formed film, for Tibbetts' transducer because it was considered as a matter of engineering design choice to use a particular type of film.

Regarding claim 18, although Tibbetts fails to explicitly show the distance between peak to trough is one-half wavelength, this is an inherent feature to ensure that the piezo film to operate properly.

3. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tibbetts in view of Tanaka as applied to claim 1 above, and further in view of Sakagami et al (hereafter Sakagami) (US 4,784,915).

Regarding claim 17, Tibbetts fails to show the distance between the film and the supporting backplate. Sakagami teaches how to use a piezoelectric film (col. 6, lines 27-35) transducer with a backplate (2) for generating ultrasonic signals. As shown in col. 6, Sakagami suggested that the spacing between the piezo film and the backplate is quarter wavelength. Thus, it would have been obvious to one of ordinary skill in the art to modify Tibbetts and Tanaka in view of Sakagami by using the piezoelectric film transducer in order to generate the ultrasonic signals.

Response to Arguments

4. Applicant's arguments filed 7/18/07 have been fully considered but they are not persuasive.

In response to applicant's argument that the present invention includes the limitation of a polymer film diaphragm, Tibbetts discloses a transducer using a polymer film such as polyvinylidene fluoride (see abstract).

In response to applicant's argument that there is no motivation to combine the film transducer of Tibbetts and the parametric loudspeaker of Tanaka, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Applicant's argument is based on the invention disclosed in the specification, which has more features than what is being specifically and explicitly claimed. For example, applicant argued that Tanaka teaches a ceramic bimorph transducer, and the present invention is not. However, the invention as claimed does not specifically and explicitly exclude such feature. Examiner cannot agree with applicant's assertion that Tanaka teaches a ceramic bimorph transducer because Tanaka never uses those words in the entire patent. The articles provided in Exhibit A-C do not give clear link between their designs and Tanaka. Furthermore, the fundamental reference used in the prior art rejection is Tibbetts, which teaches a

polymer film transducer. What is missing in Tibbetts is the electronic circuit for driving the polymer film transducer. One skilled in the art would be motivated to search for a circuit for driving the transducer. Tanaka teaches how to set up the circuit and drive the ultrasonic radiator based on the parametric interaction in Fig. 2. Applicant argues a feature, the specific sound pressure level being applied to the transducer, that is not specifically and explicitly claimed. Again, it is irrelevant because it is not a part of the claims.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

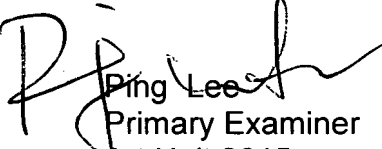
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522.

The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ping Lee
Primary Examiner
Art Unit 2615

pwl